

# STATEMENT OF PURPOSE

HILFI ALKAFF

COMPUTER SCIENCE PH.D. APPLICANT

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My career aspiration is to be a professor in the area of computer systems, contributing to the research community, undergraduate education and most importantly, the society as a whole. In the current era where computers of one form or another are ubiquitous and influence our everyday life significantly, being a professor will give me a lot of opportunities in ameliorating the quality of life in the society. This is exactly the reason I am applying for a graduate program.

Growing up in one of the developing countries, Indonesia, my interest in computer science research is sparked as I observed that several of the problems that persist in the country could be eradicated by computers. For instance, since networking infrastructures are not made sufficiently energy-efficient, they have not been established properly and reliably throughout Indonesia, especially in the rural areas. This makes it challenging for me to stay connected with my relatives since they are spread throughout the country. Medical assistance could not be effectively delivered to them by the government due to the same exact reason. After surveying several areas of computer science, I believe that the area of computer systems is the most applicable for my purpose since that will equip me with the necessary knowledge to ameliorate my home country and developing countries in general.

Fueled by my newly-found interest to explore the area of systems, I have been conducting research with Professor John Kubiawicz and the Par Lab operating systems group for the past two years. Specifically, I help design and implement Tessellation, our manycore OS. Experiencing a large-scale systems project, from the early conceptual design stages through implementation and evaluation, has been extremely fruitful and has resulted in a technical report [1] and multiple publications [3, 2, 4] which I hope to continue at UT Austin. My experiences with the Par Lab have helped in refining my research interests while preparing me for future systems research.

Currently, I regard connectivity as one of the central problems in the developing countries that could be solved with computer systems and I would like to explore it further. UT Austin stands out due to the caliber of the faculties in the Laboratory for Advanced Systems Research group and the novel networking projects that are being carried out. As I aspire to become processor, I am also attracted by the strength of the undergraduate program in UT Austin as I look forward to teaching as a graduate student. For these reasons, I believe that the PhD program at UT Austin is the best match for my interest. Given my background, I believe that I am in a good position to make crucial contribution in such pursuits.

## References

- [1] H. Alkaff, V. Chiem, and A. Wang. Preserving Interactivity of GUI Applications. Technical report, UC Berkeley ParLab Retreat, 2010.
- [2] J. A. Colmenares, S. Bird, G. Eads, S. Hofmeyr, E. Huerta-Yero, A. Kim, R. Poddar, H. Alkaff, K. Asanovic, , and J. Kubiatawicz. Performance Predictability in the Tessellation Manycore OS. In *Seventh conference on Computer systems (In Review)*, EuroSys, 2012.
- [3] J. A. Colmenares, S. Bird, G. Eads, S. Hofmeyr, E. Huerta-Yero, A. Kim, R. Poddar, H. Alkaff, K. Asanovic, and J. Kubiatawicz. Building a Real-time, Responsive, High-throughput Client OS for Many-core Architectures. In *Proceedings of the IEEE Symposium on High Performance Chips*, 2011.
- [4] A. Kim, J. A. Colmenares, H. Alkaff, and J. Kubiatawicz. A Real-Time, Parallel GUI Service in Tessellation Many-Core OS. In *27th International Conference on Computers and Their Applications (In Review)*, CATA, 2012.